



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/738,828	12/15/2000	Kendra Gallup	10004034-1	1571

7590

06/20/2002

AGILENT TECHNOLOGIES  
Intellectual Property Administration  
Legal Department, 51U-PD  
P.O. Box 58043  
Santa Clara, CA 95052-8043

EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 06/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/738,828

Applicant(s)

GALLUP ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-4 and 6-22 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4 and 8-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 12 March 2002 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1 and 5 are canceled on Paper No. 5 are acknowledge; however, claims 6 and 7 depend on claim 5, so that claims 6-7 are withdrawn as being non-elected or cancel for further consideration.

#### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "...**module has a flexible circuit**", claims 16 and 21, line 2 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Figures **1A-1B are improperly cross hatching**. All of the parts show in section, and only those parts, must be cross hatched. The cross hatching should be selected from those showing in MPEP 608.02.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 4, 17, and 22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as

to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification is silent regarding " an insulative material is made of silicon".

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 2-4, and 8-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwiebert et al. (U. S. Patent 5,539,153).

As to claim 2, Schwiebert discloses an electrical attachment (column 1, lines 14-15) as shown in figures 1-7 comprising:

a module (342, column 11, line 19) having a bottom surface;

a printed circuit board (350, column 11, line 20);

a ball grid array (338, column 11, line 19), interposed between the bottom surface of the module and the printed circuit board (see figure 3);

a standoff (326-figures 3B-3C, column 6, line 37), positioned on the bottom surface, having a height; wherein the standoff maintains the bottom surface of the module and the printed circuit board at the height of the standoff during re-flow.

As to claims 3-4, Schwiebert teaches an electrical attachment as shown in figures 3-7 having a standoff (326), the standoff made of silicon (column 6, lines 37-42)

As to claims 8, 16, Schwiebert discloses an electrical connection for coupling a module (342) that has a first surface and a printed circuit board (350) that has a first surface, the electrical connection as shown in figures 1-7 comprising:

a ball grid array (612-figure 6B) interposed between the first surface of the module and the first surface of the printed circuit board; and

a standoff (610-figure 6A) for maintaining the first surface of the module and the first surface of the printed circuit board at a predetermined distance during reflow.

As to claims 9 and 12, Schwiebert discloses an electrical connection as shown in figure 6 wherein standoff (610) includes a plurality of spherical balls (see figure 6A).

As to claims 10 and 13, Schwiebert discloses an electrical connection as shown in figures 3 and 6 wherein the spherical balls are removably coupled to the first surface of the module prior to reflow (see figures 3A-3C); and wherein the spherical balls are removed from the module after reflow (figures 3D-3H, column 10, lines 49-59).

As to claims 11 and 14, Schwiebert discloses an electrical connection as shown in figures 3 and 6 wherein the spherical balls are fixably coupled to the first surface of the module prior to reflow; and wherein the spherical balls remain coupled to the first surface of the module after reflow (see figures 6A-6C).

As to claim 15, Schwiebert discloses an electrical connection as shown in figures 1-7 wherein the standoff has a height that is determined based on a predetermined amount of ball collapse (see figures 1A-1B).

As to claim 17, Schwiebert discloses an electrical connection as shown in figures 1-7 wherein the standoff is made from one of a silicon material (326, column 6, line 42).

As to claims 18 and 21, Schwiebert discloses an electrical connection for coupling a module (342) that has a first surface and a printed circuit board (350) that has a first surface, the electrical connection as shown in figures 1-7 comprising:

a ball grid array (338; 612) interposed between the first surface of the module and the first surface of the printed circuit board; and

standoff means (326; 610), disposed between the first surface of the module and the first surface of the printed circuit board, for acting as a shim during reflow.

As to claim 19, Schwiebert discloses an electrical connection as shown in figures 1-7 wherein the standoff means (326; 610) is coupled to the first surface of the module (342) and maintains the first surface of the module and the first surface of the printed circuit board at a predetermined distance during reflow; and wherein the standoff means has a height that is determined based on a predetermined amount of ball collapse (see figures 1A-1B).

As to claim 8, Schwiebert discloses an electrical connection as shown in figures 1-7 wherein the standoff means is removably coupled to the first surface of the module prior to reflow; and wherein the standoff means is removed from the module after reflow.

As to claim 22, Schwiebert discloses an electrical connection as shown in figures 1-7 wherein the standoff means is made from one of an a silicon material (column 6, line 42)

***Response to Arguments***

7. Applicant's arguments with respect to claims 2-4 and 8-22 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chao et al., and Pao et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

**TD**

June 11, 2002.

A handwritten signature in black ink, appearing to read 'Kamand Cuneo', written in a cursive style.

**KAMAND CUNEO  
PRIMARY EXAMINER**